

Amendments to the Claims

This listing of claims will replace all prior listings of claims in the application.

Listing of Claims

1. (Currently Amended) A method for compressing data representing a 3D unit vector, comprising the steps of:
 - a) determining X, Y, and Z components ~~from~~ of the vector;
 - b) determining in which octant ~~of an octant pair~~ the vector falls ~~to derive~~;
 - c) deriving octant pair data from signs of the X and Y components of the vector;
 - ed) deriving a scaling factor for the vector;
 - e) scaling the X and Y components ~~vector~~ with a the scaling factor; and
 - df) deriving compressed data values to represent the vector and the octant of an octant pair in which the vector falls, with the vector being encoded as compressed data values and ~~from the octant pair data and the scaled vector data.~~
2. (Canceled)
3. (Canceled)
4. (Currently Amended) ~~A~~ The method for compressing data representing a 3D unit vector according to claim ~~3-1~~ in which the compressed data values are derived from the octant pair data and the scaled X and Y components in combination with ~~the~~ a sign of the Z component.
5. (Currently Amended) ~~Apparatus~~ An apparatus for compressing data representing a 3D unit vector, comprising:

a) means for determining X, Y and Z components ~~from~~ of the vector;

b) means for ~~deriving octant pair data by~~ determining in which octant of ~~a plurality of~~ four octant pairs the vector falls;

c) means for deriving octant pair data from signs of the X and Y components of the vector;

ed) means for deriving a scaling factor for the vector;

e) means for scaling the X and Y components of the vector data values with the scaling factor; and

df) means for deriving compressed data values to represent the vector ~~from~~ and the octant of the octant pair data and the scaled vector data in which the vector falls, with the vector being encoded as compressed data values and octant pair data.

6. (Canceled)

7. (Canceled)

8. (Currently Amended) ~~Apparatus~~ The apparatus for compressing data representing a 3D unit vector according to claim 5 in which the compressed data values are derived from the octant pair data and the scaled X and Y components in combination with ~~the~~ a sign of the Z component.

9. (Currently Amended) A method for decompressing data representing a 3D unit vector from compressed data comprising three fields, the ~~methods~~ method comprising the steps of:

a) identifying one of four octant pairs from octant pair data stored in ~~the~~ a first field;

b) extracting first and second data values from second and third fields;

c) determining from the first and second data values in which the octant of the an identified octant pair in which the vector falls;

d) deriving X, Y and Z components ~~in dependence of the choice of octants~~ from the first and second data values and the octant pair data; and

e) normalizing the X, Y, and Z components to derive a unit vector.

10. (Currently Amended) ~~Apparatus~~ An apparatus for decompressing data representing a 3D unit vector from compressed data of three fields, the apparatus comprising:

a) means for identifying one of four octant pairs from octant pair data stored in ~~the~~ a first field;

b) means for extracting first and second data values from ~~the~~ second and third fields, respectively;

c) means for determining, from the first and second data values, in which the octant of ~~the~~ an identified octant pair in which the vector ~~falls~~ falls;

d) means for deriving X, Y and Z components ~~in dependence on the choice of octant~~ from the first and second data values; and

e) means for normalizing the X, Y and Z components to derive a unit vector.